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the distinctions to be due to isolation, without any reference to utility. Suppose a variable type to occupy a valley, A. A few examples wander to valley B and start a colony. Their average is not the same as that of the whole population of the place whence they came; hence the colony will differ more or less, from the start, from the parent race. If this difference is not harmful it will be perpetuated.

The proposition that natural selection can have nothing to do with these changes seems to need examination. It is possible, for example, that when birds have got used to eating variety A in valley A they will not so readily observe and attack a different variety in the neighboring valley B. On crossing into B they might certainly be expected to look for and first attack examples similar to those they had before eaten; hence the new variations would be neglected and get some advantage. Another point is that in a variable species certain individuals will be selected by reason of characters which are, perhaps, not visible externally, *e. g.*, the ability to digest a new sort of food. When these individuals are selected out of many, in the home of the species, they will probably be of diverse varieties, and so no special color-strain, for example, will arise. But let a few examples migrate, and of these only a few survive, it is probable that these survivors will have correlated with their useful characters certain others which are not in themselves valuable.

Much more might be said, but these few criticisms will serve to indicate the problems discussed in the work; and, it is hoped, to suggest lines of observation to those who can help to give us knowledge in place of hypotheses.

T. D. A. COCKERELL.

MESILLA PARK, NEW MEXICO,

March 25, 1898.

tuting different environments for the snails. The Sandwich Islands are elevated, and it is quite certain that the greatest precipitation of moisture must occur at the higher levels, and on the side of the islands first reached by the prevalent winds. On sloping ground there must also be marked differences of sunlight; and, in short, it may be regarded as certain that the Sandwich Islands valleys do not offer identical conditions.

Penikese; a Reminiscence by One of Its Pupils.

Albion, N. Y. 1895. Pp. 95. Price, \$3.00.

This is a work dedicated by an unknown author 'To all to whom the memory of Penikese and its Master is dear.' We note in the preface that 'the material of which this little volume is composed furnishes the apology which its author would make for its appearance,' and that 'it seems best no longer to withhold its pages from the public.' The material does not furnish an apology; what the public has done to provoke its publication is not stated, and unsuspecting librarians who may be inspired with everything that bears the name of Penikese should hesitate before placing their orders.

The first chapter, 'The Journey,' is largely devoted to a description of a New England hay field and the antics of a sunbeam in an obscure New Bedford hotel. In the second chapter we learn how 'two score and ten specialists' met together 'on this desolate island,' how they scrambled for their baggage, and how the author took a nap, and what he dreamt, on the afternoon of his arrival. In chapter five the general details of the laboratory are discussed. The author tells us that there were 'bottles of alcohol, sea water, glycerine and other preserving fluids;' how there were 'the remains of a skate fish with the brains exposed' to show 'the five pairs of nerves and their surroundings exactly as they exist in nature;' how the snails 'lay their eggs, in large numbers, bunched together and sticking to each other;' how 'snails' eggs are opaque and white, being longer than broad.'

Writing of one of the leading naturalists, the unknown author says: "Sometimes he tells us about that most wonderfully curious appendage of the bivalves or the lamellibranchs, the crystalline style, and of how it has no attachment to body; this leads to an investigation, and our discoveries are marvelous."

Further on we read as follows: "Ciliary motion ten foot square would exert a force equal to ten tons." * * "One species floats on the surface of the ocean when it is calm. * * specimens, *specimens*, *specimens*, EVERYWHERE. Our professors lecture to us of nothing else; our time is spent in securing and dissecting them." * * "It is from such sketches of our lectures as

those just given that the reader will obtain a glimpse, faint and imperfect though it may be, of a single day's doings at Penikese."

The description of the Physalia is unique and especially good: "As we have no specimen before us, let us try, through the medium of the 'dead languages,' a little induction *a posteriori*, and discover, if we can, *what* our specimen is really like."

"At first sight, the Portugese man-of-war would put one in mind, as the name suggests, of an immense bubble of air." * * "It stings us with an electric stroke." * * "The true home of this living, floating island is in the Gulf of Mexico," etc. The author says he found a specimen, which 'threw off' a whole tankful of young, which went paddling around everywhere of their own free will, as happy as clams at high water.'

Aside from a few errors in spelling and the misstatement of a few well-known historical facts, we offer no further adverse criticism, though in closing we cannot refrain from quoting from page 64, where the author says: "Well do I remember how often Professor Agassiz urged us to read only the best of books." * * * "He cordially detested the ordinary books upon scientific subjects. At one time, in a paroxysm of rage at these 'would-be scientists,' he exclaimed: 'They are mere compilations of persons unfamiliar with science, who mix the false and the true.' Alas, shall we ever again meet with his equal, as teacher and pupil and brother combined!"

H. C. B.

NOTE: Since writing the above review we have examined an advertising circular which announces 'A Memorial Volume of Penikese,' the same as the above mentioned work. We quote from this circular as follows: "About two years ago I completed a contract for the printing of my 'Penikese Island;' unfortunately, before the pages were finished, the parties with whom I contracted became bankrupt. I have just succeeded in rescuing the sheets from the wreck at an expense of something over \$100. The work is in signatures, is on tinted paper, hand-made expressly for the purpose, comprises about 100 pages, and only 100

copies were printed. These will be sent to the old teachers and scholars and their friends only if they can be found. Price, postpaid, \$3.00. Send check or postal order to W. A. Stearns, Atlanta, Ga."

Exploration of the Air by Means of Kites. I. *Kites and Instruments*, by S. P. FERGUSSON. II. *Results from the Kite Meteorographs and Simultaneous Records at the Ground.* III. *Discussion of the Observations*, by H. HELM CLAYTON. Reprinted from the *Annals of the Astronomical Observatory of Harvard College*, Vol. XLII., Part I. Cambridge, 1897. 4to. Pp. 43-128. Pls. VII.

Ten years ago no one would have thought that a serious piece of scientific work could have for its subject the exploration of the air by means of kites. Yet, as has been frequently pointed out in this JOURNAL during the last two years, the records obtained from the free air, at altitudes up to two miles above the earth's surface, by means of meteorological instruments attached to kite lines, have given extremely valuable results. So much so, indeed, has this been the case that *kite meteorology*, if we may so term it, has come to be recognized as an increasingly important branch of the general science of meteorology. Occasional reference has been made in these columns to the kite work done at Blue Hill Observatory, under the direction of Mr. A. Lawrence Rotch, by Messrs. Clayton, Fergusson and Sweetland. This work is now well known, but until the present time there has been no complete report upon it.

The publication, in the *Annals of the Harvard College Observatory*, of a monograph on *The Exploration of the Air by Means of Kites*, marks an epoch in the history of modern meteorology. The Weather Bureau issued, in 1896, a valuable Bulletin (by Professor Marvin) entitled *Kite Experiments at the Weather Bureau*, but this was concerned chiefly with the construction of kites and the forces acting on them, and did not include a discussion of the instrumental records obtained by means of the kites.

It is impossible, in a brief notice, to do the Blue Hill kite report justice. There are three chapters in all. The first, on *Kites and Instruments*, is by Mr. S. P. Fergusson, and deals with